

NEW ISSUE



**SIGHT, HEARING AND
DENTAL HEALTH
(persons aged 2 to 14 years)**

FEBRUARY–MAY 1979

CATALOGUE NO. 4337.0

AUSTRALIAN BUREAU OF STATISTICS Canberra

**SIGHT, HEARING AND DENTAL HEALTH
(PERSONS AGED 2 TO 14 YEARS)**

FEBRUARY – MAY 1979

R. J. CAMERON
Australian Statistician

Catalogue No. 4337.0

AUSTRALIAN BUREAU OF STATISTICS

INQUIRIES

*If you want to know more about these statistics ring Mr David Wilson on Canberra 526410 or our State office, or write to Information Services, ABS, P.O. Box 10, Belconnen, A.C.T. 2616.
For copies of this publication contact Information Services, Canberra 526627 or State offices.*

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SIGHT, HEARING AND DENTAL HEALTH (PERSONS AGED 2 TO 14 YEARS) FEBRUARY – MAY 1979

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EXPLANATORY NOTES

Introduction

During February to May 1979, a sample household survey was conducted throughout Australia in order to obtain information about the sight, hearing and dental health of the Australian population aged 2 to 14 years. This survey also collected data on the sight and dental health for persons aged 15 years or more for which related publications will be released during 1980.

2. A previous survey conducted in September 1978 collected information about the prevalence of hearing problems and the use of hearing aids for persons aged 15 years or more. These results were published in "*Hearing and the Use of Hearing Aids*" (4336.0).

3. This publication contains results from the February-May 1979 survey for persons aged 2 to 14 years only.

Survey methodology

4. The survey was based on a multi-stage area sample of private dwellings (about 14,000 houses, flats, etc.) and non-private dwellings (hotels, motels, etc.) and covered about one-third of one percent of the population of Australia. The information was obtained from the occupants of the selected dwellings by carefully chosen and specially trained interviewers.

Scope

5. The estimates relate to all persons aged 2 to 14 years *except*:

- (a) boarding school students, patients in hospitals, nursing homes and other health institutions or inmates of reformatories, etc.,
- (b) dependents of certain diplomatic personnel of overseas governments customarily excluded from census and estimated populations,
- (c) overseas visitors on tour or holidaying in Australia,
- (d) dependents of non-Australian defence forces stationed in Australia.

6. The exclusion of persons currently in hospitals, nursing homes and other health institutions should be borne in mind in assessing the significance of the results.

Definitions : Sight

7. *Glasses/contact lenses* — includes all prescribed glasses or contact lenses and excludes all forms of glasses which are not prescription glasses such as industrial eye-protection glasses and non-prescribed sunglasses.

8. *Colour blindness* — refers to an inability to identify one or more of the primary colours. The replies to this question were based on the respondent's own knowledge of whether the person concerned was colour blind and not on any sight test done at the time of interview.

9. *Loss of sight* — concerns persons who may or may not wear glasses but report a loss of sight. This loss may be full or partial loss in one or both eyes.

The following should be noted:

- (a) If a person has a loss of sight which can be helped by glasses or contact lenses and also has another type of loss of sight which cannot be helped by glasses then such persons appear in the category "cannot be helped by glasses/contact lenses".
- (b) The number of persons reporting a loss of sight who can be helped by glasses or contact lenses will not necessarily equal the number of persons currently wearing glasses as some persons may need glasses but have not obtained them.

10. *Person who last examined sight* — Persons were asked whether the last test was done by either the school health service, an optometrist/ optician, an eye specialist (ophthalmologist) or some other person.

Definitions : Hearing

11. *Hearing problem* — A person was considered to have a hearing problem if the respondent reported that person having trouble hearing what people say or currently possessed a hearing aid. Excluded from this group were persons whose hearing problem was *only* caused by a periodic build up of wax in an ear.

12. *Cause of hearing problem* —

Congenital/hereditary includes any hearing problem resulting from birth or from mother's illness during pregnancy;

Accident refers to hearing problems resulting from a sudden noise or event such as an explosion.

Definitions : Dental

13. *Dentist* — includes dental technicians, mechanics or therapists.

Reliability of the estimates

14. Since the estimates are based on a sample they are subject to sampling variability (see Technical Note, page 27 for further details). Some figures in this publication are replaced or preceded by the symbol *. Estimates preceded by this symbol have a standard error of between 25 and 50 per cent and care should be exercised in using them because they are subject to such high errors. Estimates which are replaced with this symbol have a standard error greater than 50 per cent.

15. In addition to sampling errors, the survey results are subject to non-sampling errors, i.e. those inaccuracies that may occur because of imperfections in reporting by interviewers or respondents, processing errors and non-response. Such errors may occur in any

statistical collection whether it is a full census count or a sample survey. Every effort is made to reduce non-sampling errors in the survey to a minimum by careful design and testing of questionnaires, by intensive training and supervision of interviewers, and by efficient operating procedures.

16. The following factors should be considered in interpreting the estimates in this publication:

- (a) The information provided by respondents was not medically verified and reported problems such as colour blindness and trouble hearing were not necessarily based on diagnoses by medical practitioners,
- (b) The answers to the questions were usually based on the knowledge of one person in a household (generally the mother of the child)

Related publications

17. Other ABS publications which may be of interest include:

Hearing and the Use of Hearing Aids (persons aged 15 years or more) September 1978 (4336.0)

Australian Health Survey Bulletin No. 1, September 1977 (Preliminary) (4309.0)

Australian Health Survey Bulletin No. 2, December 1977 (Preliminary) (4310.0)

Australian Health Survey, 1977-78 (4311.0)

18. All current publications produced by the ABS are listed in *Catalogue of Publications* (1101.0) which is available free of charge from any ABS office.

Symbols and other usages

- .. not applicable
- * subject to high sampling variability (see explanatory note 14 on page 3)

19. Where figures have been rounded, discrepancies may occur between sums of the component items and totals. Published rates and percentages are calculated prior to rounding of figures and therefore some discrepancy may exist between these rates or percentages and those that could be calculated from the rounded figures.

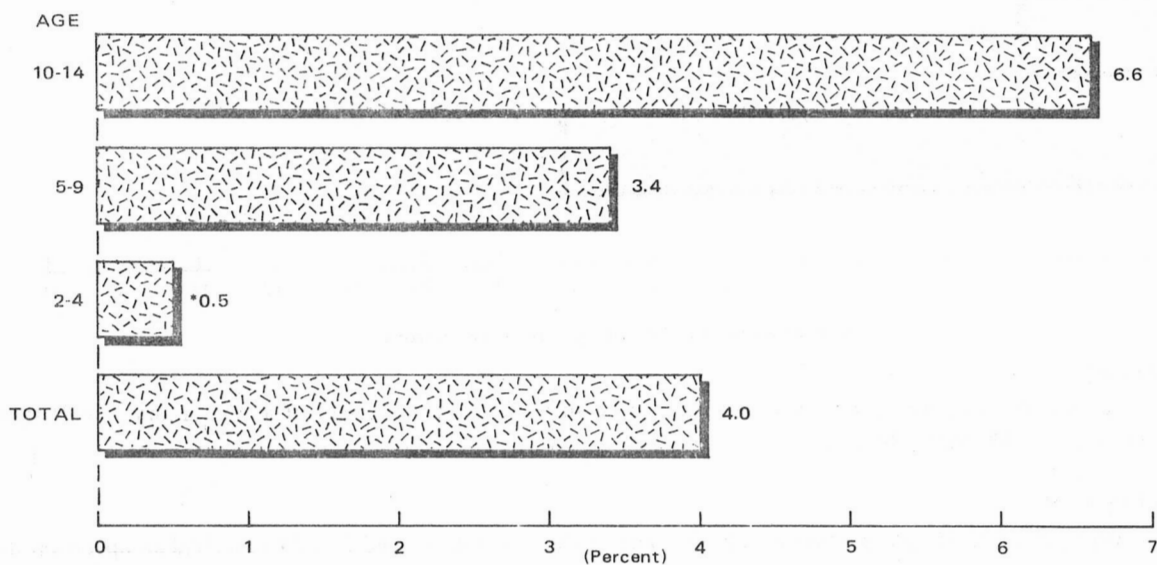
SUMMARY OF FINDINGS

SECTION 1. SIGHT

PERSONS WITH GLASSES/CONTACT LENSES

Approximately 4 per cent of the Australian population aged 2 to 14 years were reported as having glasses or contact lenses to help their sight. The diagram below shows that the percentage of persons with glasses increases with age.

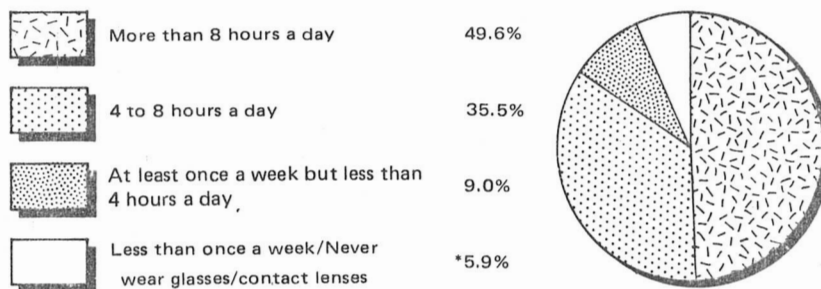
PERCENT OF POPULATION IN EACH AGE GROUP WITH GLASSES/CONTACT LENSES



How often glasses/contact lenses worn

Almost one half (49.6 per cent) of persons with glasses/contact lenses wear them for more than 8 hours a day. However, approximately 6 per cent wear their glasses/contact lenses less than once a week or never.

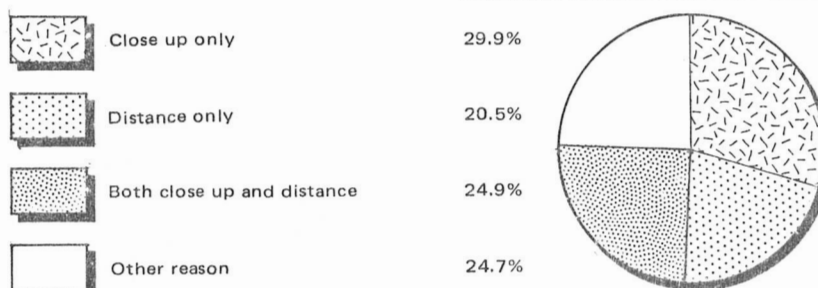
HOW OFTEN GLASSES/CONTACT LENSES WORN



Reason glasses/contact lenses worn

The most frequently reported reason for using glasses/contact lenses, was "to help see close-up only".

REASON GLASSES/CONTACT LENSES WORN

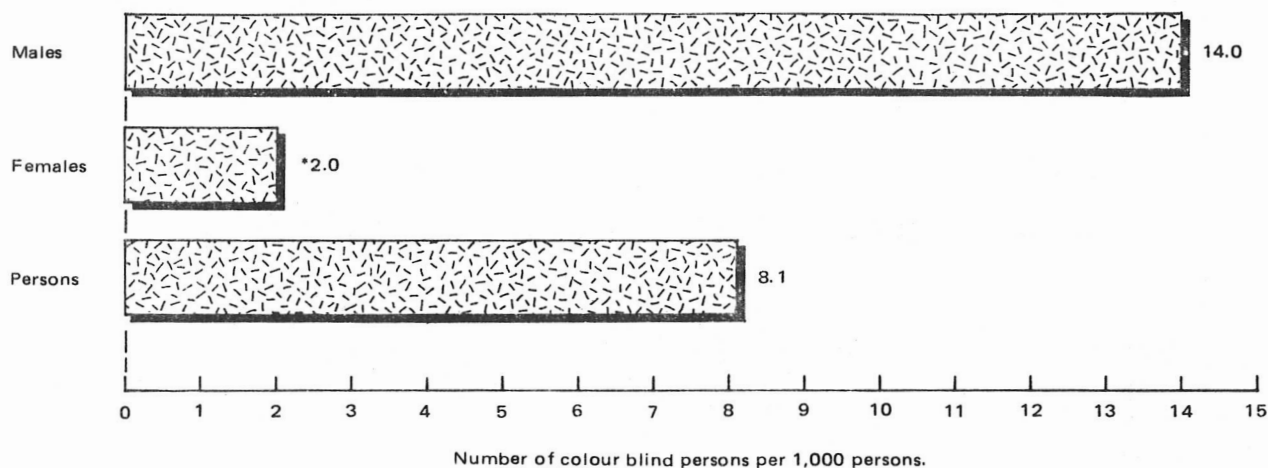


PERSONS WITH SIGHT PROBLEMS

Colour blindness

The incidence of reported colour blindness for persons aged 2 to 14 years of age is 8.1 per 1,000 persons. As the diagram below shows the rate for males is approximately 7 times as great as that for females.

RATE OF COLOUR BLINDNESS : SEX



Effect of eye injury

The number of persons who were reported to be suffering from the effect of an eye injury was 21,000 or a rate of 6.5 persons per 1,000 aged 2 to 14 years.

Operation to help sight

Approximately 58,200 persons or 1.8 per cent of the population aged 2 to 14 years had an operation to help their sight.

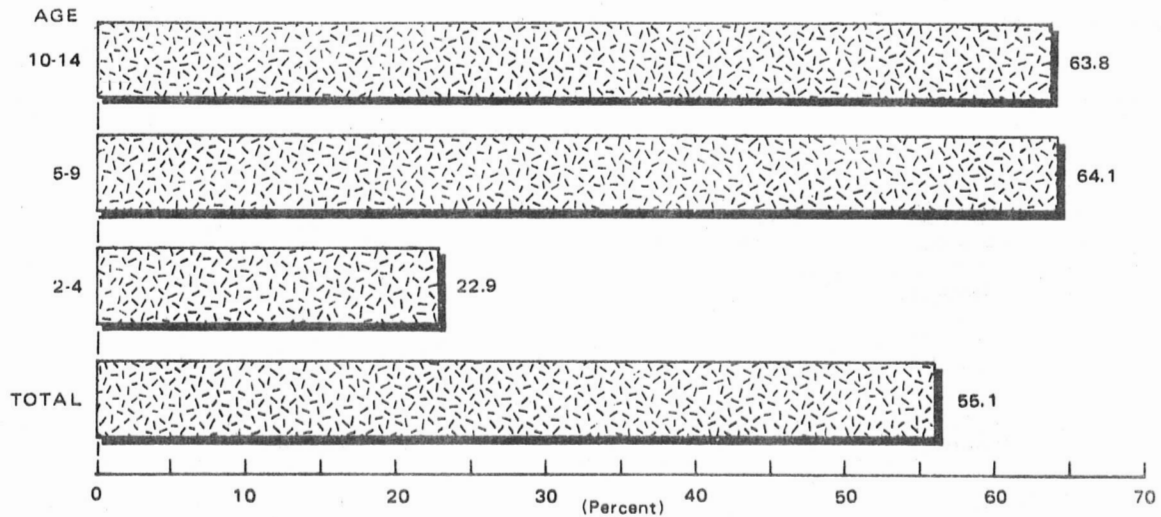
Loss of sight

Approximately 5 per cent of persons aged 2 to 14 years were reported to have some loss of sight. This ranged from partial loss in one eye only to complete loss in both eyes. Of persons with loss of sight about 20 per cent had a loss of sight which could not be helped by glasses. More males than females were affected in this way.

PERSONS WHO HAVE HAD THEIR SIGHT TESTED

Approximately 55 per cent of the population aged 2 to 14 years had their sight tested in the last five years. The chart below shows that the percentage of the population who have had their sight tested is lowest in the 2 to 4 year age group but remains fairly constant between the age groups 5 to 9 and 10 to 14 years.

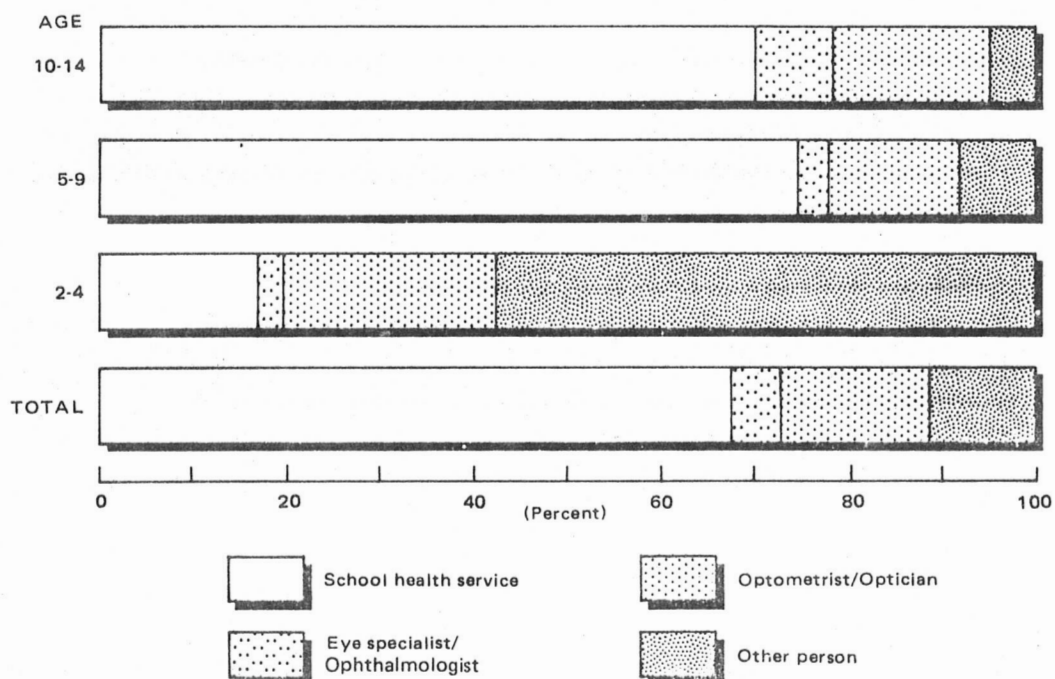
PERCENT OF POPULATION IN EACH AGE GROUP WHO HAD THEIR SIGHT TESTED IN THE LAST FIVE YEARS



Person who tested sight

Of persons who had their sight tested in the last five years over two-thirds (67.5 per cent) had their last sight test conducted by school health services. The chart below shows the types of persons who last tested the person's sight. For the age group 2 to 4 years the category most frequently reported was 'other person' which includes such persons as nurses and general practitioners.

TYPE OF PERSON WHO LAST TESTED SIGHT : AGE



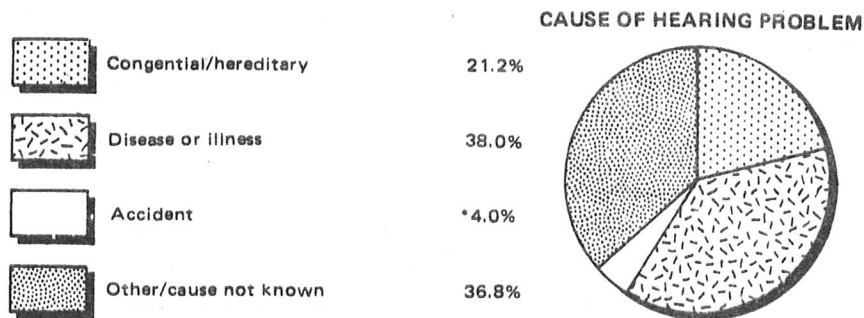
SECTION 2. HEARING

PERSONS WITH HEARING PROBLEMS

Approximately 2 per cent of the total Australian population aged 2 to 14 years were reported to be suffering some form of hearing problem. This compares with a figure of approximately 7 per cent for persons aged 15 years or more obtained from a survey conducted in September 1978. (Refer to *"Hearing and the Use of Hearing Aids"* (Catalogue number 4336.0).)

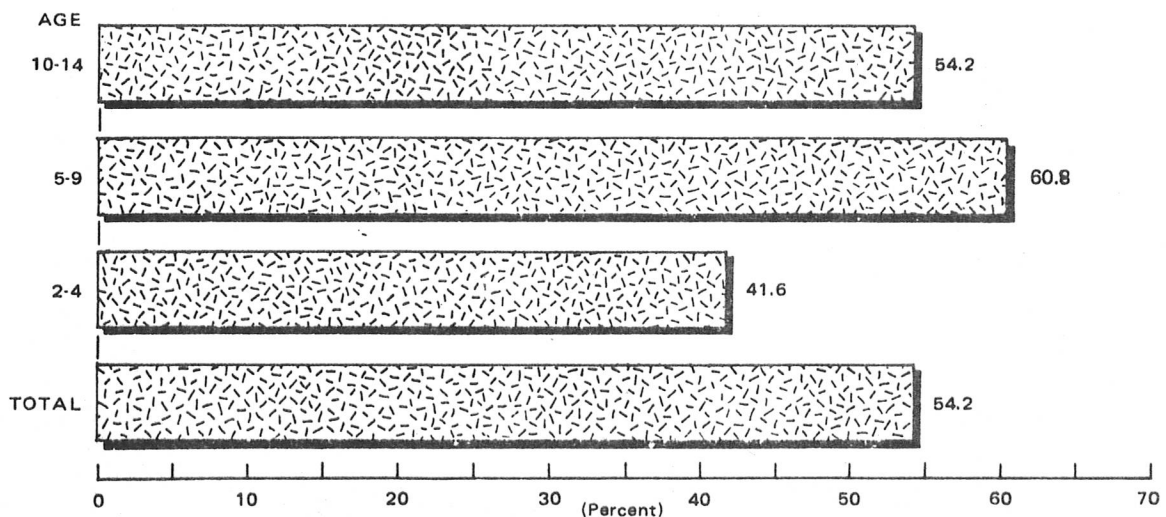
Cause of hearing problem

The most frequent cause of hearing problem for persons aged 2 to 14 years was the category 'disease or illness' (38.0 per cent) followed by the category 'other/cause not known' (36.8 per cent).



PERSONS WHO HAVE HAD THEIR HEARING TESTED

Approximately 54 per cent of the population aged 2 to 14 years had their hearing tested in the last 5 years. This compares with a figure of 16 per cent for the population aged 15 years or more. (Refer to *"Hearing and the Use of Hearing Aids"* (Catalogue number 4336.0).)

PER CENT OF POPULATION IN EACH AGE GROUP WHO HAD THEIR HEARING TESTED
IN THE LAST 5 YEARS

Type of test

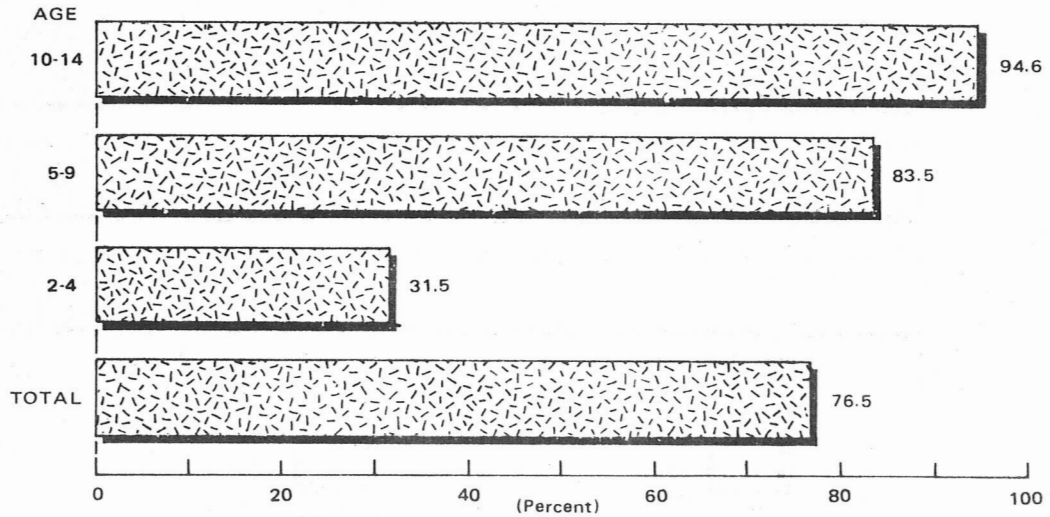
Machines using headphones were used in the most recent hearing test in 36 per cent of tests. However 35 per cent of tests were done without headphones being used. 29 per cent of persons did not know if headphones had been used.

SECTION 3. DENTAL

PERSONS WHO HAVE VISITED A DENTIST

Approximately 77 per cent of persons aged 2 to 14 years had visited a dentist at some stage of their life. As the chart below indicates this ranges from 32 per cent of persons aged 2 to 4 years to 95 per cent of persons aged 10 to 14 years.

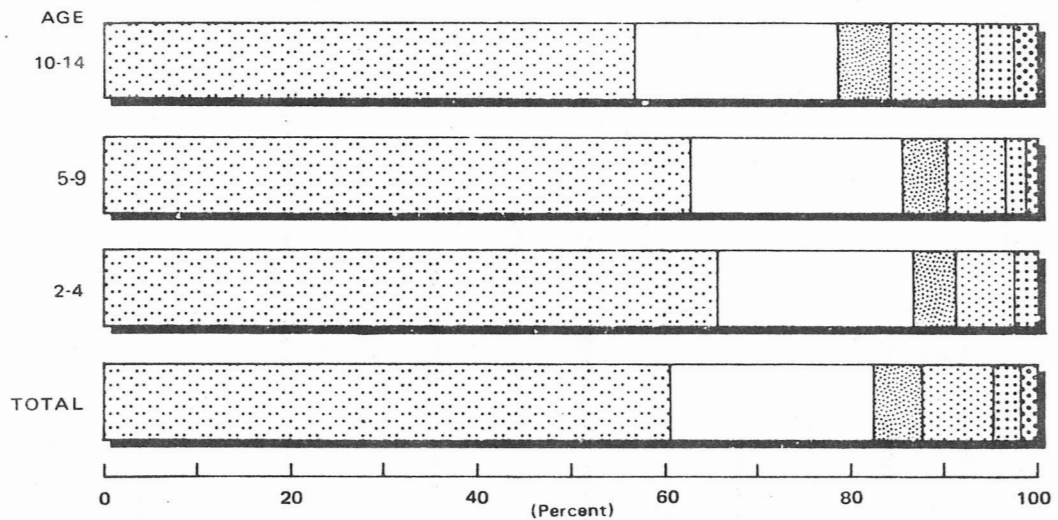
PER CENT OF POPULATION IN EACH AGE GROUP WHO HAVE VISITED A DENTIST



Time since last visit

Of persons who have visited a dentist approximately 61 per cent had their last visit 6 months or less ago. Over 80 per cent (82.8 per cent) had their most recent visit within the last 12 months.

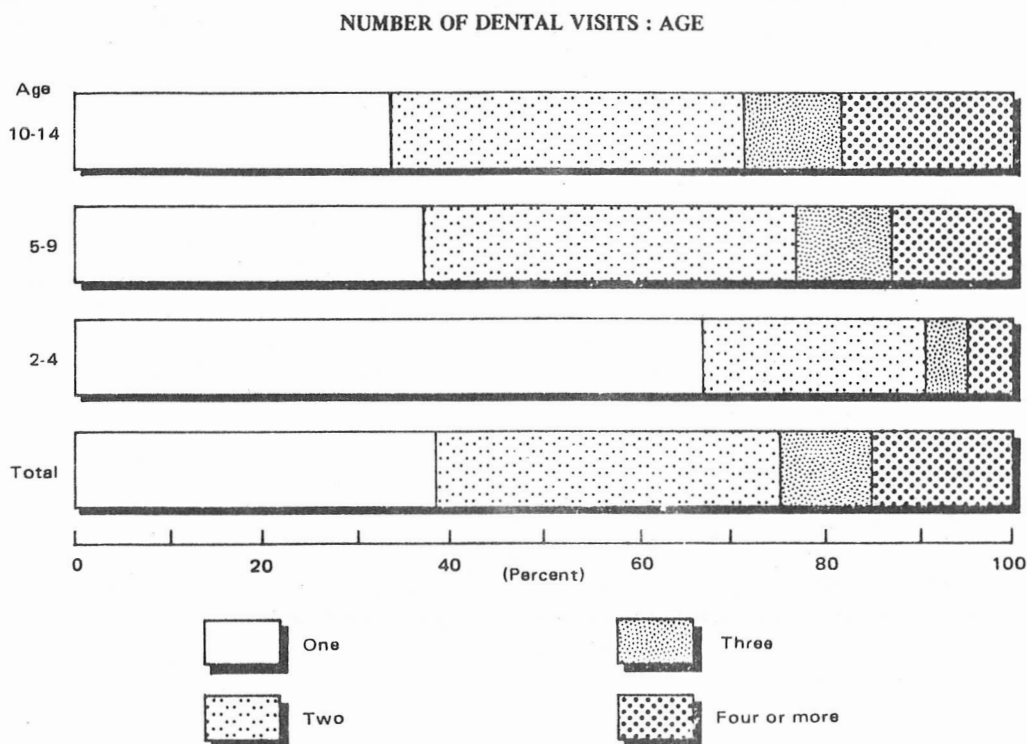
PERSONS WHO HAVE VISITED A DENTIST : TIME SINCE LAST DENTAL VISIT BY AGE



PERSONS WHO VISITED A DENTIST IN THE LAST 12 MONTHS

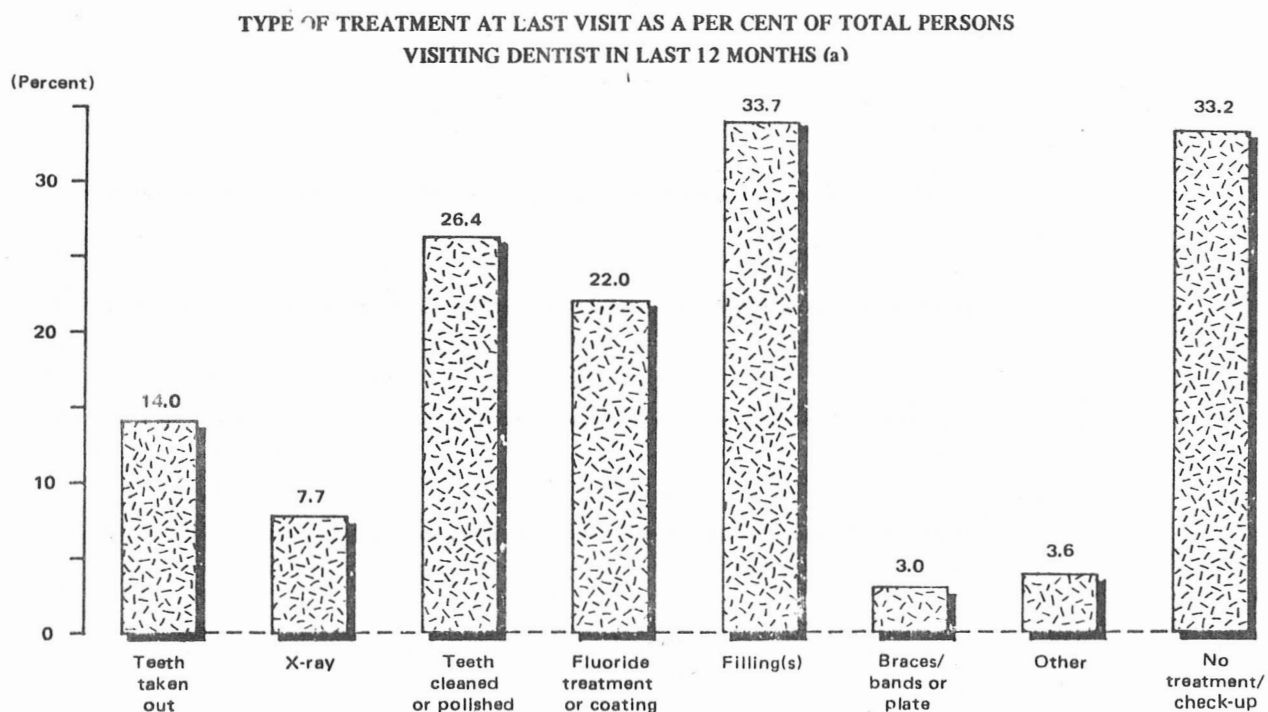
Number of dental visits

Approximately 15 per cent of persons who visited a dentist in the last 12 months had four or more visits during that time. The chart below shows the number of visits persons had during the previous 12 months.



Treatment received at last visit

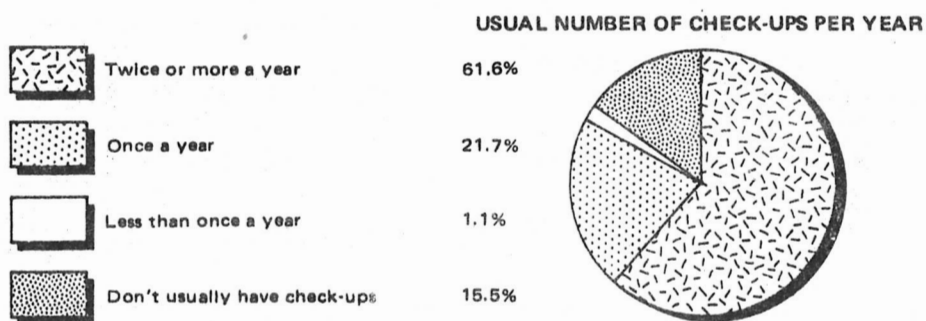
The chart below shows for persons who visited a dentist in the last 12 months the type of treatment or treatments they received at their last visit. The most frequently reported groups were 'Filling(s)' and 'No treatment/check-up' which were each reported for approximately one third of persons who saw a dentist in the last 12 months.



(a) As more than one type of treatment may be performed at the last visit, percentages will not necessarily add to 100.

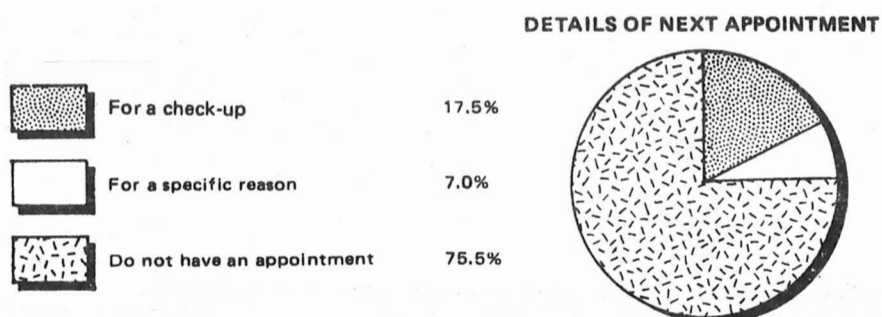
Usual number of check-ups per year

Nearly 85 per cent of persons who visited a dentist in the previous 12 months usually have a check-up at least once a year. Of these persons approximately 73 per cent usually had two or more check-ups per year.



Details of next appointment

Approximately 25 per cent of persons who visited a dentist in the last 12 months were reported at the time of interview to have an appointment to make another visit to the dentist. For 71 per cent of these persons the purpose of the appointment was for a check-up while for the remaining 29 per cent their appointment was for a specific reason.



SECTION 1. SIGHT

TABLE 1. PERSONS WITH GLASSES/CONTACT LENSES : AGE BY SEX

	<i>Age (years)</i>			
	<i>2-4</i>	<i>5-9</i>	<i>10-14</i>	<i>Total</i>
NUMBER ('000)				
Males	*	19.4	40.9	61.8
Females	*	25.7	41.3	68.9
Total persons	*3.4	45.1	82.2	130.8
RATE (a)				
Males	*	28.8	64.3	37.0
Females	*	40.0	68.6	43.5
Total persons	*4.9	34.3	66.4	40.2

(a) Number per 1,000 population in each category.

TABLE 2. PERSONS WITH GLASSES/CONTACT LENSES : STATE BY SEX

	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
NUMBER ('000)									
Males	22.9	15.5	*5.5	7.3	7.0	*1.7	*	*1.8	61.8
Females	27.7	20.4	6.3	5.9	5.0	*2.0	*	*1.2	68.9
Total persons	50.7	35.9	11.8	13.2	12.0	3.8	*	*3.0	130.8
RATE (a)									
Males	40.1	34.3	*21.7	50.6	47.3	34.7	*	*59.5	37.0
Females	51.0	47.4	26.2	43.0	35.5	42.0	*	*41.3	43.5
Total persons	45.4	40.7	23.9	46.9	41.6	38.3	*	*50.8	40.2

(a) Number per 1,000 population in each category.

TABLE 3. PERSONS WITH GLASSES/CONTACT LENSES : HOW OFTEN GLASSES/CONTACT LENSES WORN
BY AGE BY SEX
(000)

How often glasses/contact lenses worn	Age (years)			Total	
	2-4	5-9	10-14	Number	Per cent
MALES					
More than 8 hours a day	*	11.8	18.1	31.4	50.9
4 to 8 hours a day	*	*5.4	17.4	22.8	36.9
At least once a week but less than 4 hours a day	*	*	*3.1	*4.1	*6.6
Less than once a week	*	*	*	*	*
Never wear glasses/contact lenses	*	*	*	*2.7	*4.3
Total males	*	19.4	40.9	61.8	100.0
FEMALES					
More than 8 hours a day	*	13.1	18.6	33.4	48.4
4 to 8 hours a day	*	*8.9	14.4	23.6	34.3
At least once a week but less than 4 hours a day	*	*3.2	*4.5	*7.7	*11.1
Less than once a week	*	*	*2.9	*3.4	*5.0
Never wear glasses/contact lenses	*	*	*	*	*
Total females	*	25.7	41.3	68.9	100.0
PERSONS					
More than 8 hours a day	*3.1	24.9	36.7	64.8	49.6
4 to 8 hours a day	*	14.4	31.8	46.4	35.5
At least once a week but less than 4 hours a day	*	*4.2	*7.6	11.8	9.0
Less than once a week	*	*	*3.4	*4.2	*3.2
Never wear glasses/contact lenses	*	*	*2.7	*3.6	*2.7
Total persons	*3.4	45.1	82.2	130.8	100.0

TABLE 4. PERSONS WITH GLASSES/CONTACT LENSES : REASON GLASSES/CONTACT LENSES WORN
BY AGE BY SEX
(000)

Reason glasses/contact lenses worn	Age (years)			Total	
	2-4	5-9	10-14	Number	Per cent
MALES					
To help see -					
close up only	*	*3.8	16.5	21.2	34.3
distance only	*	*3.0	9.8	12.7	20.6
both close up and distance	*	*5.0	*8.0	13.6	22.1
Other reason	*	*7.6	*6.7	14.3	23.1
Total males	*	19.4	40.9	61.8	100.0
FEMALES					
To help see -					
close up only	*	*7.2	10.2	17.9	26.0
distance only	*	*3.1	10.9	14.0	20.3
both close up and distance	*	*8.8	9.9	18.9	27.4
Other reason	*	*6.7	10.3	18.1	26.2
Total females	*	25.7	41.3	68.9	100.0
PERSONS					
To help see -					
close up only	*	11.0	26.7	39.1	29.9
distance only	*	*6.1	20.7	26.8	20.5
both close up and distance	*	13.8	17.8	32.5	24.9
Other reason	*	14.3	17.0	32.3	24.7
Total persons	*3.4	45.1	82.2	130.8	100.0

TABLE 5. PERSONS WITH GLASSES/CONTACT LENSES : REASON GLASSES/CONTACT LENSES WORN
BY HOW OFTEN GLASSES/CONTACT LENSES WORN
(⁰⁰⁰)

How often glasses/contact lenses worn	Reason glasses/contact lenses worn				Total
	To help see close up only	To help see distance only	To help see both close up and distance	Other reason	
More than 8 hours a day	15.1	12.3	24.9	12.4	64.8
4 to 8 hours a day	17.6	11.3	*7.6	10.0	46.4
At least once a week but less than 4 hours a day	*5.4	*2.1	*	*4.3	11.8
Less than once a week	*	*	*	*2.9	*4.2
Never wear glasses/contact lenses	*	*	*	*2.8	*3.6
Total persons	39.1	26.8	32.5	32.3	130.8

TABLE 6. PERSONS REPORTING COLOUR BLINDNESS : AGE BY SEX
(⁰⁰⁰)

	Age (years)			Total		Rate (a)
	2-4	5-9	10-14	Number	Per cent	
Males	*	*7.3	15.2	23.3	88.1	14.0
Females	*	*2.2	*	*3.2	*11.9	*2.0
Total persons	*	*9.5	16.1	26.5	100.0	8.1

(a) Number per 1,000 population in each category.

TABLE 7. PERSONS SUFFERING THE EFFECT OF AN EYE INJURY : AGE BY SEX
(⁰⁰⁰)

	Age (years)			Total		Rate (a)
	2-4	5-9	10-14	Number	Per cent	
Males	*	*3.4	*8.7	13.2	63.1	7.9
Females	*	*4.3	*2.9	*7.7	*36.9	*4.9
Total persons	*	*7.8	11.6	21.0	100.0	6.5

(a) Number per 1,000 population in each category.

TABLE 8. PERSONS WHO HAD AN OPERATION TO HELP SIGHT : AGE BY SEX
(⁰⁰⁰)

	Age (years)			Total		Rate (a)
	2-4	5-9	10-14	Number	Per cent	
Males	*5.2	10.9	12.9	29.0	49.8	17.4
Females	*5.4	12.4	11.5	29.2	50.2	18.4
Total persons	10.6	23.3	24.3	58.2	100.0	17.9

(a) Number per 1,000 population in each category.

TABLE 9. PERSONS WITH LOSS OF SIGHT : AGE BY SEX

	Age (years)			Total
	2-4	5-9	10-14	
NUMBER ('000)				
Males	*4.0	27.2	48.5	79.7
Females	*2.9	31.7	48.0	82.6
Total persons	*6.9	58.9	96.5	162.2
RATE (a)				
Males	*11.2	40.4	76.2	47.7
Females	*8.4	49.3	79.8	52.0
Total persons	*9.8	44.7	77.9	49.8

(a) Number per 1,000 population in each category.

TABLE 10. PERSONS WITH LOSS OF SIGHT THAT CANNOT BE HELPED BY GLASSES/CONTACT LENSES :
AGE BY SEX

	Age (years)			Total
	2-4	5-9	10-14	
NUMBER ('000)				
Males	*	9.8	10.7	22.2
Females	*	*3.5	*6.1	10.8
Total persons	*2.9	13.3	16.8	33.0
RATE (a)				
Males	*	14.5	16.9	13.3
Females	*	*5.4	*10.1	6.8
Total persons	*4.1	10.1	13.6	10.1

(a) Number per 1,000 population in each category.

TABLE 11. PERSONS WHO HAD THEIR SIGHT TESTED IN THE LAST 5 YEARS : TIME SINCE LAST TEST
BY AGE BY SEX
('000)

Time since last sight test	Age (years)			Total	
	2-4	5-9	10-14	Number	Per cent
MALES					
Less than 1 year ago	38.8	244.4	172.9	456.2	50.4
1 year to less than 3 years ago	33.1	151.4	155.4	339.9	37.6
3 years to 5 years ago	*5.8	34.2	69.0	108.9	12.0
Total males	77.7	430.0	397.3	905.0	100.0
Rate (a)	216.0	638.8	624.6	542.2	..
FEMALES					
Less than 1 year ago	36.5	233.3	176.3	446.0	50.2
1 year to less than 3 years ago	39.9	143.2	156.4	339.4	38.2
3 years to 5 years ago	*6.5	37.0	59.8	103.3	11.6
Total females	82.8	413.4	392.5	888.8	100.0
Rate (a)	242.3	643.1	651.8	560.1	..
PERSONS					
Less than 1 year ago	75.3	477.7	349.2	902.2	50.3
1 year to less than 3 years ago	73.0	294.5	311.8	679.3	37.9
3 years to 5 years ago	12.2	71.1	128.8	212.2	11.8
Total persons	160.5	843.5	789.8	1,793.7	100.0
Rate (a)	228.8	640.9	637.8	550.9	..

(a) Number per 1,000 population in each category.

TABLE 12. PERSONS WHO HAD THEIR SIGHT TESTED IN THE LAST 5 YEARS : TIME SINCE LAST TEST
BY STATE
('000)

Time since last sight test	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Less than 1 year ago	287.4	220.1	120.1	86.2	108.1	48.2	10.1	21.8	902.2
1 year to less than 3 years ago	216.3	207.5	71.7	66.3	69.1	24.0	7.6	16.9	679.3
3 years to 5 years ago	75.8	71.4	25.5	14.6	18.1	2.7	*	*3.1	212.2
Total persons	579.6	499.0	217.3	167.1	195.2	75.1	18.7	41.8	1,793.7
Rate (a)	519.4	566.0	439.1	594.0	674.3	762.0	533.4	708.1	550.9

(a) Number per 1,000 population in each category.

TABLE 13. PERSONS WHO HAD THEIR SIGHT TESTED IN THE LAST 5 YEARS : TYPE OF PERSON WHO LAST TESTED SIGHT BY AGE BY SEX ('000)

Person who tested sight	Age (years)			Total	
	2-4	5-9	10-14	Number	Per cent
MALES					
School health service	15.5	315.6	274.7	605.8	66.9
Optometrist/Optician	*	12.9	35.9	49.9	5.5
Eye specialist/Ophthalmologist	16.7	63.9	68.0	148.6	16.4
Other person (a)	43.3	32.0	16.1	91.4	10.1
Total males (b)	77.7	430.0	397.3	905.0	100.0
FEMALES					
School health service	11.7	314.5	278.7	604.9	68.1
Optometrist/Optician	*3.3	15.9	33.8	53.0	6.0
Eye specialist/Ophthalmologist	19.4	52.5	63.7	135.7	15.3
Other person (a)	48.4	27.9	13.1	89.3	10.1
Total females (b)	82.8	413.5	392.5	888.8	100.0
PERSONS					
School health service	27.2	630.1	553.4	1,210.7	67.5
Optometrist/Optician	*4.4	28.8	69.7	102.9	5.7
Eye specialist/Ophthalmologist	36.1	116.4	131.7	284.2	15.8
Other person (a)	91.6	59.9	29.2	180.7	10.1
Total persons (b)	160.5	843.5	789.8	1,793.7	100.0

(a) Includes general practitioners and nurses. (b) Includes 15,400 persons (9,400 males and 6,000 females) who did not know who last tested their sight.

TABLE 14. PERSONS WHO HAD THEIR SIGHT TESTED IN THE LAST 5 YEARS : TYPE OF PERSON WHO LAST TESTED SIGHT BY STATES ('000)

Person who tested sight	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
School health service	389.9	335.8	139.2	113.8	129.4	61.8	11.7	29.2	1,210.7
Optometrist/Optician	36.9	26.9	17.4	9.0	8.8	*2.3	*	*1.2	102.9
Eye specialist/Ophthalmologist	105.2	74.5	39.5	22.9	24.9	5.7	*4.6	6.8	284.2
Other person	46.5	50.3	20.8	20.4	31.3	5.3	*	4.6	180.7
Total persons (a)	579.6	499.0	217.3	167.1	195.2	75.1	18.7	41.8	1,793.7

(a) Includes 15,400 persons (9,400 males and 6,000 females) who did not know who last tested their sight.

TABLE 15. PERSONS WHO HAD THEIR SIGHT TESTED IN THE LAST 5 YEARS : TIME SINCE LAST TEST AND WHETHER GLASSES/CONTACT LENSES POSSESSED ('000)

Time since last sight test	Persons with glasses/contact lenses		Persons without glasses/contact lenses		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Less than one year ago	86.4	66.6	815.8	49.0	902.2	50.3
1 year to less than 3 years ago	38.1	29.4	641.2	38.5	679.3	37.9
3 years to 5 years ago	*5.3	*4.1	206.9	12.4	212.2	11.8
Total persons	129.7	100.0	1,664.0	100.0	1,793.7	100.0

SECTION 2. HEARING

TABLE 16. PERSONS WITH A HEARING PROBLEM : AGE BY SEX

	Age (years)			Total
	2-4	5-9	10-14	
NUMBER ('000)				
Males	*2.0	20.3	16.5	38.7
Females	*2.7	13.8	10.5	27.0
Total persons	*4.7	34.1	27.0	65.7
RATE (a)				
Males	*5.5	30.1	25.9	23.2
Females	*7.8	21.5	17.4	17.0
Total persons	*6.6	25.9	21.8	20.2

(a) Number per 1,000 population in each category.

TABLE 17. PERSONS WITH A HEARING PROBLEM : CAUSE OF HEARING PROBLEM BY AGE BY SEX ('000)

<i>Cause of hearing problem</i>	<i>Age (years)</i>			<i>Total</i>	
	<i>2-4</i>	<i>5-9</i>	<i>10-14</i>	<i>Number</i>	<i>Per cent</i>
MALES					
Congenital/hereditary	*	*3.7	*3.4	*7.7	*19.9
Disease or illness	*	*9.4	*5.5	15.5	40.1
Accident	*	*	*	*	*
Other/cause not known	*	*7.2	*6.3	14.2	36.7
Total males	*2.0	20.3	16.5	38.7	100.0
FEMALES					
Congenital/hereditary	*	*2.4	*3.3	*6.2	*23.2
Disease or illness	*	*3.9	*3.7	*9.4	*35.0
Accident	*	*	*	*	*
Other/cause not known	*	*7.3	*2.4	10.0	37.0
Total females	*2.7	13.8	10.5	27.0	100.0
PERSONS					
Congenital/hereditary	*	*6.1	*6.7	13.9	21.2
Disease or illness	*2.4	13.2	*9.3	25.0	38.0
Accident	*	*	*2.4	*2.6	*4.0
Other/cause not known	*	14.5	8.6	24.2	36.8
Total persons	*4.7	34.1	27.0	65.7	100.0

**TABLE 18. PERSONS WHO HAD THEIR HEARING TESTED IN THE LAST 5 YEARS : TIME SINCE LAST TEST
BY AGE BY SEX
(^{'000})**

<i>Time since last hearing test</i>	<i>Age (years)</i>			<i>Total</i>	
	<i>2-4</i>	<i>5-9</i>	<i>10-14</i>	<i>Number</i>	<i>Per cent</i>
MALES					
Less than 1 year ago	48.1	227.8	131.0	406.9	44.8
1 year to less than 3 years ago	87.7	147.5	137.8	373.0	41.1
3 years to 5 years ago	15.4	39.8	72.6	127.8	14.1
<i>Total males</i>	<i>151.2</i>	<i>415.1</i>	<i>341.4</i>	<i>907.8</i>	<i>100.0</i>
<i>Rate (a)</i>	<i>420.3</i>	<i>616.7</i>	<i>536.7</i>	<i>543.9</i>	<i>..</i>
FEMALES					
Less than 1 year ago	39.7	211.1	133.4	384.2	44.9
1 year to less than 3 years ago	84.8	135.5	126.8	347.1	40.6
3 years to 5 years ago	16.1	39.0	69.5	124.6	14.6
<i>Total females</i>	<i>140.6</i>	<i>385.6</i>	<i>329.8</i>	<i>856.0</i>	<i>100.0</i>
<i>Rate (a)</i>	<i>411.5</i>	<i>599.7</i>	<i>547.6</i>	<i>539.4</i>	<i>..</i>
PERSONS					
Less than 1 year ago	87.8	438.9	264.5	791.2	44.9
1 year to less than 3 years ago	172.5	283.0	264.5	720.1	40.8
3 years to 5 years ago	31.5	78.9	142.1	252.5	14.3
<i>Total persons</i>	<i>291.8</i>	<i>800.7</i>	<i>671.2</i>	<i>1,763.7</i>	<i>100.0</i>
<i>Rate (a)</i>	<i>416.0</i>	<i>608.4</i>	<i>542.0</i>	<i>541.7</i>	<i>..</i>

(a) Number per 1,000 population in each category.

**TABLE 19. PERSONS WHO HAD THEIR HEARING TESTED IN THE LAST 5 YEARS : TIME SINCE LAST TEST
BY STATES
(^{'000})**

<i>Time since last hearing test</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>A.C.T.</i>	<i>Aust.</i>
Less than 1 year ago	260.2	186.5	98.6	80.1	88.9	41.5	12.5	22.9	791.2
1 year to less than 3 years ago	247.3	220.0	72.2	65.6	68.5	23.8	4.2	18.6	720.1
3 years to 5 years ago	86.7	84.4	22.3	21.8	26.8	5.7	*	4.1	252.5
<i>Total persons</i>	<i>594.1</i>	<i>490.9</i>	<i>193.1</i>	<i>167.4</i>	<i>184.3</i>	<i>71.0</i>	<i>17.4</i>	<i>45.6</i>	<i>1,763.7</i>
<i>Rate (a)</i>	<i>532.4</i>	<i>556.8</i>	<i>390.2</i>	<i>595.0</i>	<i>636.3</i>	<i>720.7</i>	<i>498.3</i>	<i>771.3</i>	<i>541.7</i>

(a) Number per 1,000 population in each category.

TABLE 20. PERSONS WHO HAD THEIR HEARING TESTED IN THE LAST FIVE YEARS : TYPE OF TEST
BY AGE BY SEX
(⁰⁰⁰)

Type of hearing test (a)	Age (years)			Total	
	2-4	5-9	10-14	Number	Per cent
MALES					
Hearing tested with machine using headphones	15.1	176.0	146.2	337.3	37.2
Headphones not used when hearing tested	121.2	119.6	70.5	311.3	34.3
Don't know	14.9	119.6	124.8	259.2	28.6
Total males	151.2	415.1	341.4	907.8	100.0
FEMALES					
Hearing tested with machine using headphones	12.2	137.0	150.0	299.3	35.0
Headphones not used when hearing tested	117.0	115.2	70.2	302.4	35.3
Don't know	11.4	133.4	109.6	254.3	29.7
Total females	140.6	385.6	329.8	856.0	100.0
PERSONS					
Hearing tested with machine using headphones	27.3	313.0	296.2	636.5	36.1
Headphones not used when hearing tested	238.2	234.8	140.7	613.6	34.8
Don't know	26.3	252.9	234.3	513.6	29.1
Total persons	291.8	800.7	671.2	1,763.7	100.0

(a) Refers to last hearing test.

TABLE 21. PERSONS WHO HAD THEIR HEARING TESTED IN THE LAST FIVE YEARS : TYPE OF TEST
BY STATE
(⁰⁰⁰)

Type of hearing test (a)	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Hearing tested with machine using headphones	128.3	149.2	101.1	98.7	84.3	31.8	13.2	30.0	636.5
Headphones not used when hearing tested	268.4	212.3	35.1	18.6	48.1	17.5	*3.7	10.0	613.6
Don't know	197.4	129.4	56.9	50.1	51.9	21.7	*	5.6	513.6
Total persons	594.1	490.9	193.1	167.4	184.3	71.0	17.4	45.6	1,763.7

(a) Refers to last hearing test.

SECTION 3. DENTAL

TABLE 22. PERSONS WHO HAVE VISITED A DENTIST : TIME SINCE LAST VISIT BY AGE BY SEX
(^{'000})

Time since last dental visit	Age (years)			Total persons	
	2-4	5-9	10-14	Number	Per cent
MALES					
6 months ago or less	70.5	352.1	328.4	751.0	59.5
More than 6 months to 12 months ago	23.5	114.9	133.2	271.5	21.5
More than 12 months to 18 months ago	*7.7	34.6	37.4	79.7	6.3
More than 18 months to 3 years ago	9.9	37.0	56.7	103.6	8.2
More than 3 years to 5 years ago	*	12.7	26.4	39.1	3.1
More than 5 years ago	..	*	17.0	17.5	1.4
Total males	111.4	551.8	599.1	1,262.4	100.0
Rate (a)	309.7	819.7	941.9	756.3	..
FEMALES					
6 months ago or less	75.7	352.1	336.8	764.7	62.2
More than 6 months to 12 months ago	22.8	132.3	120.9	276.1	22.4
More than 12 months to 18 months ago	*7.5	20.5	31.9	59.9	4.9
More than 18 months to 3 years ago	*3.7	31.9	50.8	86.4	7.0
More than 3 years to 5 years ago	*	*8.2	19.6	28.0	2.3
More than 5 years ago	..	*2.2	12.5	14.7	1.2
Total females	110.0	547.2	572.5	1,229.8	100.0
Rate (a)	322.0	851.0	950.7	774.9	..
PERSONS					
6 months ago or less	146.2	704.2	665.3	1,515.6	60.8
More than 6 months to 12 months ago	46.3	247.2	254.1	547.5	22.0
More than 12 months to 18 months ago	15.2	55.1	69.4	139.6	5.6
More than 18 months to 3 years ago	13.6	68.9	107.5	190.0	7.6
More than 3 years to 5 years ago	*	20.9	46.0	67.2	2.7
More than 5 years ago	..	*2.8	29.4	32.2	1.3
Total persons	221.5	1,099.0	1,171.6	2,492.1	100.0
Rate (a)	315.7	835.0	946.2	765.4	..

(a) Number per 1,000 population in each category.

TABLE 23. PERSONS WHO HAVE VISITED A DENTIST : TIME SINCE LAST VISIT BY STATE
(^{'000})

<i>Time since last dental visit</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>A.C.T.</i>	<i>Aust.</i>
6 months ago or less	468.9	400.2	227.8	168.1	150.3	52.8	17.5	30.0	1,515.6
More than 6 months to 12 months ago	177.1	156.9	91.7	48.9	38.7	22.0	*3.3	8.9	547.5
More than 12 months to 18 months ago	45.6	34.0	30.0	6.9	15.5	3.3	*1.6	*2.6	139.6
More than 18 months to 3 years ago	72.4	53.0	29.8	9.3	18.8	3.3	*	*1.8	190.0
More than 3 years to 5 years ago	22.7	23.1	10.7	*2.9	5.8	*	*	*	67.2
More than 5 years ago	15.0	*9.4	*4.3	*	*1.6	*	*	*	32.2
Total persons	801.7	676.6	394.4	237.3	230.7	82.0	24.9	44.5	2,492.1
Rate (a)	718.4	767.4	796.8	843.5	796.9	832.8	712.5	752.9	765.4

(a) Number per 1,000 population in each category.

TABLE 24. PERSONS WHO VISITED A DENTIST IN THE LAST 12 MONTHS : NUMBER OF VISITS IN THE LAST 12 MONTHS
BY AGE BY SEX
(^{'000})

<i>Number of dental visits in the last 12 months</i>	<i>Age (years)</i>			<i>Total</i>	
	<i>2-4</i>	<i>5-9</i>	<i>10-14</i>	<i>Number</i>	<i>Per cent</i>
MALES					
One	59.7	173.8	162.0	395.4	38.7
Two	23.2	184.1	174.3	381.6	37.3
Three	*5.5	55.1	44.6	105.2	10.3
Four or more	*5.5	54.0	80.7	140.2	13.7
Total males	93.9	467.0	461.6	1,022.5	100.0
FEMALES					
One	68.5	179.7	149.5	397.7	38.2
Two	22.5	194.9	168.1	385.5	37.0
Three	*2.8	42.8	49.2	94.8	9.1
Four or more	*4.8	67.0	90.9	162.8	15.6
Total females	98.6	484.4	457.8	1,040.7	100.0
PERSONS					
One	128.2	353.5	311.5	793.1	38.4
Two	45.7	379.0	342.5	767.1	37.2
Three	*8.3	97.9	93.7	200.0	9.7
Four or more	10.3	121.0	171.7	303.0	14.7
Total persons	192.5	951.4	919.3	2,063.2	100.0

TABLE 25. PERSONS WHO VISITED A DENTIST IN THE LAST 12 MONTHS : TREATMENT RECEIVED AT LAST VISIT
BY AGE BY SEX
(⁰⁰⁰)

Treatment received at last dental visit (a)	Age (years)			Total persons	
	2-4	5-9	10-14	Number	Per cent (b)
MALES					
Teeth taken out	*6.1	71.7	76.9	154.7	15.1
X-ray	*3.2	29.7	47.2	80.0	7.8
Teeth cleaned or polished	10.4	119.6	136.5	266.5	26.1
Fluoride treatment or coating	*8.1	104.5	103.2	215.7	21.1
Filling(s)	15.2	151.6	171.1	337.9	33.0
Braces/bands or plate	*	*5.0	20.6	25.6	2.5
Other	*5.8	12.9	19.3	38.1	3.7
No treatment/check-up	59.2	161.9	118.8	339.8	33.2
Total males who visited a dentist in the last 12 months	93.9	467.0	461.6	1,022.5	..
FEMALES					
Teeth taken out	*2.7	65.4	66.2	134.4	12.9
X-ray	*	25.5	51.7	77.8	7.5
Teeth cleaned or polished	13.2	122.9	141.3	277.4	26.7
Fluoride treatment or coating	12.5	108.7	117.3	238.4	22.9
Filling(s)	15.0	163.9	177.6	356.5	34.3
Braces/bands or plate	*	*5.0	31.8	36.8	3.5
Other	*4.9	12.5	19.5	36.9	3.5
No treatment/check-up	65.4	173.2	107.0	345.6	33.2
Total females who visited a dentist in the last 12 months	98.6	484.4	457.8	1,040.7	..
PERSONS					
Teeth taken out	*8.9	137.1	143.1	289.1	14.0
X-ray	*3.7	55.1	99.0	157.8	7.7
Teeth cleaned or polished	23.6	242.5	277.8	543.9	26.4
Fluoride treatment or coating	20.6	213.1	220.4	454.1	22.0
Filling(s)	30.2	315.5	348.7	694.4	33.7
Braces/bands or plate	*	10.1	52.4	62.4	3.0
Other	10.7	25.4	38.8	74.9	3.6
No treatment/check-up	124.6	335.1	225.7	685.4	33.2
Total persons who visited a dentist in the last 12 months	192.5	951.4	919.3	2,063.2	..

(a) Persons may appear in a number of categories but they may appear only once within a category. As a result, treatment categories will not necessarily sum to the total of persons who visited a dentist in the last 12 months. (b) Per cent of persons who visited a dentist in the last 12 months.

TABLE 26. PERSONS WHO VISITED A DENTIST IN THE LAST 12 MONTHS : USUAL NUMBER OF CHECK-UPS PER YEAR
BY AGE BY SEX
(^{'000})

Usual number of check-ups	Age (years)			Total	
	2-4	5-9	10-14	Number	Per cent
MALES					
Usually have check-up –					
twice or more a year	51.0	292.7	290.7	634.4	62.0
once a year	19.0	100.3	95.4	215.8	21.1
less than once a year	*	*4.4	*3.9	*9.4	*0.9
Sub-total: usually have check-up	71.3	397.4	391.0	859.7	84.1
Do not usually have a check-up (a)	22.6	69.6	70.6	162.8	15.9
Total males	93.9	467.0	461.6	1,022.5	100.0
FEMALES					
Usually have check-up –					
twice or more a year	49.0	307.1	280.6	636.7	61.2
once a year	28.8	104.5	99.6	232.9	22.4
less than once a year	*2.7	*3.1	*8.2	13.9	1.3
Sub-total: usually have check-up	80.5	414.6	388.4	883.5	84.9
Do not usually have a check-up (a)	18.0	69.8	69.4	157.2	15.1
Total females	98.5	484.4	457.8	1,040.7	100.0
PERSONS					
Usually have check-up –					
twice or more a year	100.0	599.8	571.3	1,271.1	61.6
once a year	47.8	204.8	196.0	448.7	21.7
less than once a year	*3.9	*7.4	12.1	23.4	1.1
Sub-total: usually have check-up	151.8	812.0	779.3	1,743.2	84.5
Do not usually have a check-up (a)	40.7	139.3	140.0	320.0	15.5
Total persons	192.5	951.4	919.3	2,063.2	100.0

(a) Only see a dentist for a specific reason.

TABLE 27. PERSONS WHO VISITED A DENTIST IN THE LAST 12 MONTHS : USUAL NUMBER OF CHECK-UPS PER YEAR
BY NUMBER OF VISITS IN THE LAST 12 MONTHS
(^{'000})

Usual number of check-ups	Number of dental visits in the last 12 months				Total	
	One	Two	Three	Four or more	Number	Per cent
Usually have check-up –						
twice or more a year	252.6	637.3	147.9	233.4	1,271.1	61.6
once a year	319.0	75.8	24.5	29.3	448.7	21.7
less than once a year	15.1	*	*2.3	*4.1	23.4	1.1
Sub-total: usually have check-up	586.7	715.0	174.7	266.8	1,743.2	84.5
Do not usually have a check-up (a)	206.5	52.1	25.2	36.2	320.0	15.5
Total persons	793.1	767.1	200.0	303.0	2,063.2	100.0

(a) Only see a dentist for a specific reason.

TABLE 28. PERSONS WHO VISITED A DENTIST IN THE LAST 12 MONTHS : DETAILS OF NEXT APPOINTMENT
BY AGE BY SEX
(^{'000})

Details of next dental appointment	Age (years)			Total	
	2-4	5-9	10-14	Number	Per cent
MALES					
Have an appointment –					
for a check-up	17.2	82.1	79.7	179.1	17.5
for a specific reason	*2.1	25.8	40.1	68.0	6.7
<i>Sub-total: have an appointment</i>	<i>19.4</i>	<i>107.9</i>	<i>119.8</i>	<i>247.1</i>	<i>24.2</i>
Do not have an appointment	74.5	359.1	341.7	775.4	75.8
<i>Total males</i>	<i>93.9</i>	<i>467.0</i>	<i>461.6</i>	<i>1,022.5</i>	<i>100.0</i>
FEMALES					
Have an appointment –					
for a check-up	14.7	85.1	82.8	182.6	17.5
for a specific reason	*	25.6	49.2	76.1	7.3
<i>Sub-total: have an appointment</i>	<i>16.0</i>	<i>110.7</i>	<i>132.0</i>	<i>258.7</i>	<i>24.9</i>
Do not have an appointment	82.5	373.7	325.8	782.0	75.1
<i>Total females</i>	<i>98.5</i>	<i>484.4</i>	<i>457.8</i>	<i>1,040.7</i>	<i>100.0</i>
PERSONS					
Have an appointment –					
for a check-up	31.9	167.2	162.6	361.6	17.5
for a specific reason	*3.5	51.4	89.3	144.2	7.0
<i>Sub-total: have an appointment</i>	<i>35.4</i>	<i>218.6</i>	<i>251.8</i>	<i>505.8</i>	<i>24.5</i>
Do not have an appointment	157.1	732.8	667.5	1,557.4	75.5
<i>Total persons</i>	<i>192.5</i>	<i>951.4</i>	<i>919.3</i>	<i>2,063.2</i>	<i>100.0</i>

TABLE 29. PERSONS WHO VISITED A DENTIST IN THE LAST 12 MONTHS : DETAILS OF NEXT APPOINTMENT
BY USUAL NUMBER OF CHECK-UPS PER YEAR
(^{'000})

Usual number of check-ups	Have an appointment			Do not have an appointment	Total	
	For a check-up	For a specific reason	Total		Number	Per cent
Usually have a check-up–						
twice or more a year	316.6	102.9	419.5	851.6	1,271.1	61.6
once a year	36.7	18.0	54.7	393.9	448.7	21.7
other	*3.5	*2.1	*5.7	17.7	23.4	1.1
<i>Sub-total: usually have check-up</i>	<i>356.8</i>	<i>123.1</i>	<i>479.8</i>	<i>1,263.3</i>	<i>1,743.2</i>	<i>84.5</i>
Do not usually have a check-up (a)	*4.9	21.1	26.0	294.0	320.0	15.5
<i>Total persons</i>	<i>361.6</i>	<i>144.2</i>	<i>505.8</i>	<i>1,557.4</i>	<i>2,063.2</i>	<i>100.0</i>

(a) Only see a dentist for specific reason.

TABLE 30. PERSONS AGED 2 TO 10 YEARS WHO HAVE VISITED A DENTIST : AGE FIRST VISITED A DENTIST
BY CURRENT AGE BY SEX
(^{'000})

<i>Age first visited a dentist</i>	<i>Age (years)</i>			<i>Total</i>	
	<i>2-4</i>	<i>5-9</i>	<i>10 only</i>	<i>Number</i>	<i>Per cent</i>
MALES					
Less than 3 years old	64.1	87.2	20.3	171.6	22.1
3 years to less than 5 years	47.3	265.5	41.2	354.1	45.7
5 years to less than 7 years	..	167.6	31.3	198.9	25.7
7 years old or more	..	31.5	19.4	50.9	6.6
<i>Total males</i>	<i>111.4</i>	<i>551.8</i>	<i>112.2</i>	<i>775.4</i>	<i>100.0</i>
FEMALES					
Less than 3 years old	57.3	98.8	19.5	175.6	22.7
3 years to less than 5 years	52.5	263.3	48.4	364.2	47.1
5 years to less than 7 years	..	155.5	30.0	185.5	24.0
7 years old or more	..	29.6	17.4	47.0	6.1
<i>Total females</i>	<i>110.0</i>	<i>547.2</i>	<i>115.3</i>	<i>772.5</i>	<i>100.0</i>
PERSONS					
Less than 3 years old	121.4	186.0	39.8	347.2	22.4
3 years to less than 5 years	99.8	528.9	89.6	718.2	46.4
5 years to less than 7 years	..	323.1	61.3	384.4	24.9
7 years old or more	..	61.1	36.8	97.9	6.3
<i>Total persons</i>	<i>221.5</i>	<i>1,099.0</i>	<i>227.5</i>	<i>1,548.0</i>	<i>100.0</i>

**SECTION 4. DISTRIBUTION OF THE AUSTRALIAN POPULATION AGED 2 TO 14 YEARS
(FOR USE IN CALCULATION OF RATES)**

**TABLE 31. AUSTRALIAN POPULATION AGED 2 TO 14 YEARS : AGE BY SEX
(^{'000})**

	<i>Age (years)</i>			<i>Total</i>
	<i>2-4</i>	<i>5-9</i>	<i>10-14</i>	
Males	359.8	673.2	636.1	1,669.0
Females	341.7	642.8	602.2	1,586.8
Total Persons	701.5	1,316.0	1,238.3	3,255.8

**TABLE 32. AUSTRALIAN POPULATION AGED 2 TO 14 YEARS : STATE BY SEX
(^{'000})**

	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>A.C.T.</i>	<i>Aust.</i>
Males	572.3	451.3	253.3	144.7	148.7	50.4	18.1	30.5	1,669.0
Females	543.7	430.4	241.6	136.7	140.9	48.0	16.9	28.6	1,586.8
Total persons	1,115.9	881.7	494.9	281.3	289.6	98.3	35.0	59.1	3,255.8

TECHNICAL NOTE

Estimation procedure

Estimates derived from the survey are obtained by using a complex ratio estimation procedure, which ensures that the survey estimates conform to an independently estimated distribution of the population by age and sex, rather than to the age and sex distribution within the sample itself.

Reliability of the estimates

2. Since the estimates in this publication are based on information obtained from occupants of a sample of dwellings they are subject to sampling variability; that is, they may differ from the figures that would have been produced if all dwellings had been included in the survey. One measure of the likely difference is given by the *standard error*, which indicates the extent to which an estimate might have varied by chance because only a sample of dwellings was included. There are about two chances in three that a sample estimate will differ by less than one standard error from the figure that would have been obtained if all dwellings had been included, and about nineteen chances in twenty that the difference will be less than two standard errors. Another measure of the likely difference is the *relative standard error*, which is obtained by expressing the standard error as a percentage of the estimate.

3. Space does not allow for the separate indication of the standard error of all estimates in this publication. A table of standard errors for general application is given in Table A on page 28. These figures will not give a precise measure of the standard error of a particular estimate but they will provide an indication of its magnitude. An example of the calculation and use of standard errors is as follows: Table 1 shows that the estimated number of males aged 5 to 9 years with glasses/contact lenses in Australia is 19,400. From Table A it will be seen that the estimate has a standard error of

about 3,200 and therefore there are about two chances in three that the value that would have been produced if all dwellings had been included in the survey will fall within the range 16,200 to 22,600 and about nineteen chances in twenty that the value will fall within the range 13,000 to 25,800. This example is illustrated in the diagram below.

4. The size of the standard error in relation to the estimate indicates that the actual value could be greater or less (within standard error ranges) than the published figure.

5. As the standard errors in the table show, *the smaller the estimate the higher is the relative standard error*. Very small estimates would thus be subject to such high standard errors (relative to the size of the estimate) as to detract seriously from their value for most reasonable uses. In this publication, only estimates with relative standard errors less than 25% are considered sufficiently reliable for most purposes. Estimates with relative standard errors of 25% or more are indicated by an *. Estimates with relative standard errors between 25% and 50% have been included but care should be exercised in using them because they are subject to such high errors. Estimates with relative standard errors greater than 50% have not been shown and although figures for these components can in some cases be derived by subtraction, they should not be regarded as reliable.

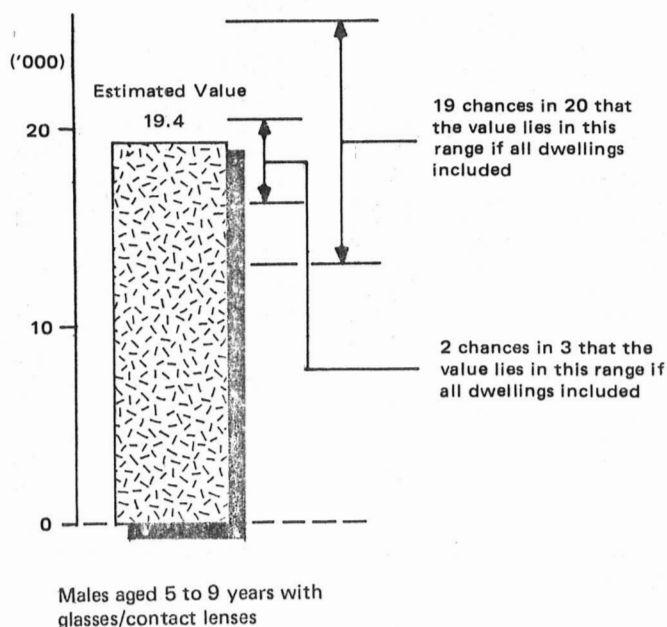
6. The reliability of an estimated percentage or rate computed by using sample data for both numerator and denominator, depends upon both the size of the numerator and the size of the denominator. However, the relative standard error of the estimated percentage will generally be lower than the relative standard error of the estimate of the numerator

7. Approximate standard errors on rates or percentages may be derived by first obtaining the relative standard error of the number of persons corresponding to the numerator of this rate or percentage and then applying this figure to the estimated rate or percentage. The relative standard error of the numerator can be obtained from Table A. An example of this calculation is as follows: Table 16 shows a rate of 23.2 per 1,000 males with a hearing problem and that the numerator of this rate is 38,700. By interpolation from Table A the relative standard error of the numerator is approximately 11.1 per cent. The standard error on this rate is approximated as:

Rate x Relative standard error

$$= 23.2 \times \frac{11.1}{100.0}$$

$$= 2.6$$



Therefore there are 2 chances in 3 that the rate that would have been obtained if all dwellings had been included in the survey is in the range 20.6 to 25.8 per 1,000 males and 19 chances in 20 that is is in the range 18.0 to 28.4 per 1,000 males.

8. Published figures may also be used to estimate the difference between two survey estimates (estimates of numbers, rates or percentages). Such a figure is itself an estimate and is therefore subject to sampling error. The sampling error of the difference between two survey estimates depends on the standard errors of the original estimates and on the relationship (correlation) between the two original estimates. An approximate standard error of the difference between two estimates (x-y) may be calculated by the following formula:

$$\text{Standard error (x-y)} = \sqrt{(\text{Standard error (x)})^2 + (\text{Standard error (y)})^2}$$

While this formula will only be exact for differences between separate and uncorrelated (unrelated) characteristics or sub-populations it is expected to provide a good approximation for all differences likely to be of interest in this publication.

9. An example of the use of the above formula is as follows. The difference between the estimates of the number of males and females aged 2 to 14 years with a hearing problem (Table 16) is

$$38,700 - 27,000 = 11,700$$

10. The standard error of this estimate is as follows. From Table A the standard errors of each of the two original estimates can be approximated as 4,300 and 3,700 respectively. Therefore the standard error on the difference 11,700 is given by:

$$\begin{aligned} \text{Standard error (38,700 - 27,000)} \\ &= \sqrt{(4,300)^2 + (3,700)^2} \\ &= 5,700 \text{ (rounded to nearest 100)} \end{aligned}$$

Thus there are about 2 chances in 3 that the difference that would have been obtained, if all dwellings had been included in the survey is within the range 6,000 to 17,400 and about 19 chances in 20 that this difference is between 300 and 23,100.

11. The imprecision due to sampling variability, which is measured by the standard error, should not be confused with inaccuracies that may occur because of imperfections in reporting by interviewers and respondents. Inaccuracies of this kind are referred to as the *non-sampling error*, and they may occur in any enumeration, whether it be a full count or only a sample. Every effort is made to reduce the non-sampling error to a minimum by careful design of questionnaires, intensive training and supervision of interviewers and efficient operating procedures.

TABLE A - STANDARD ERRORS OF ESTIMATES

Size of estimate	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Australia
500									Relative
600						310			standard
700						330			error
800						360			(per cent)
900						380			
1,000						400			
1,100					530	420		540	
1,200					580	430		560	
1,300				650	600	450		580	
1,400				670	620	470		590	
1,500				700	650	480		610	
2,000			890	800	750	550	910	670	
2,500		1,200	1,000	880	840	600	1,000	720	1,100
3,000	1,400	1,300	1,100	960	920	650	1,100	760	1,300
3,500	1,500	1,400	1,200	1,000	990	690	1,200	790	1,400
4,000	1,600	1,500	1,300	1,100	1,100	730	1,300	820	1,500
4,500	1,700	1,600	1,300	1,100	1,100	760	1,300	850	1,600
5,000	1,800	1,700	1,400	1,200	1,200	790	1,400	870	1,600
6,000	2,000	1,800	1,500	1,300	1,300	850	1,500	900	1,800
10,000	2,500	2,300	1,900	1,600	1,600	1,000	1,900	1,000	2,300
20,000	3,400	3,200	2,600	2,100	2,100	1,200	2,300	1,100	3,300
50,000	5,000	4,800	3,800	2,800	3,000	1,500	3,000	1,200	4,900
100,000	6,600	6,300	5,100	3,500	3,800	1,700		1,200	6,600
200,000	8,500	8,300	6,600	4,300	4,700	1,800			8,800
300,000	9,800	9,600	7,700	4,700	5,200				10,000
500,000	12,000	12,000	9,200	5,300	5,600				12,000
1,000,000	14,000	15,000	12,000						16,000
2,000,000	17,000	18,000							20,000
5,000,000									26,000

Brackets around standard errors indicate a standard error per cent exceeding 25%.

